

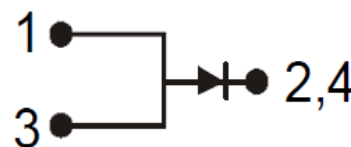
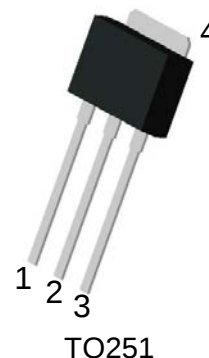
Features

- $V_{RRM} = 45V$
 $I_{F(AV)} = 10A$
- HEBR® Technology
- Ultra-Low Forward Voltage Drop
- Low Power Loss and High Efficiency
- High Surge Capability
- Low Leakage Current
- Lead Free and Green Devices Available

Applications

- Rectifiers in SMPS
- Free Wheeling Diode
- DC-DC Converters

Pin Description



High Efficiency Barrier Rectifier

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C = 25^\circ C$ Unless Otherwise Noted)			
$V_{RRM}^{①}$	Maximum Repetitive Reverse Voltage	45	V
$V_R^{①}$	Maximum DC Reverse Voltage	45	V
$V_{R(RMS)}^{①}$	RMS Reverse Voltage	32	V
$I_{F(AV)}$	Average Rectified Forward Current, $T_C = 130^\circ C$	10	A
I_{FSM}	Peak Forward Surge Current, 8.3ms Half Sine Wave	150	A
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
Mounted on Large Heat Sink			
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	100	$^\circ C/W$

Electrical Characteristics ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

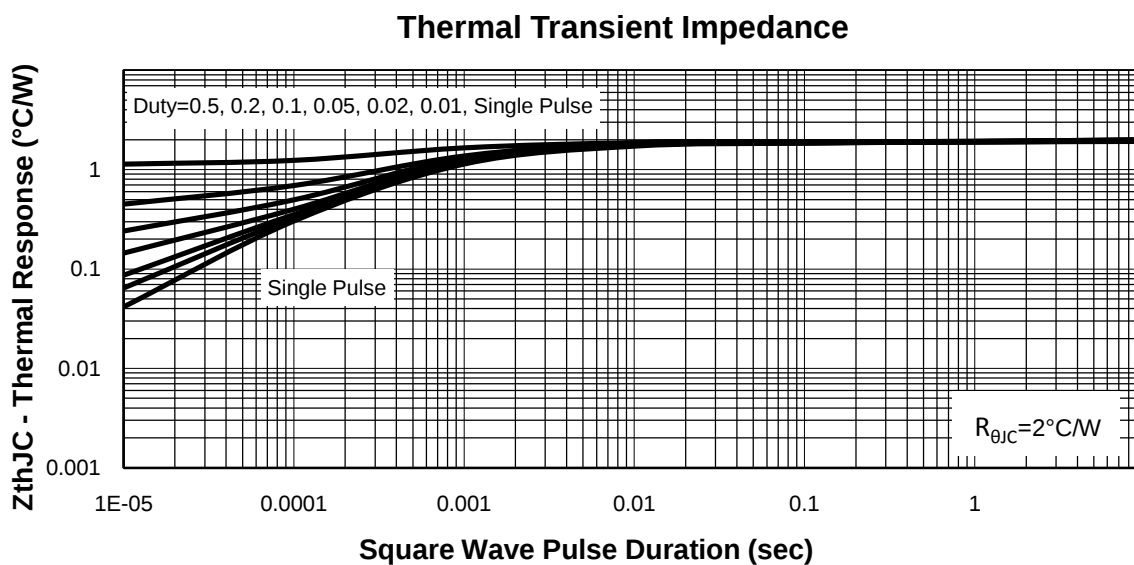
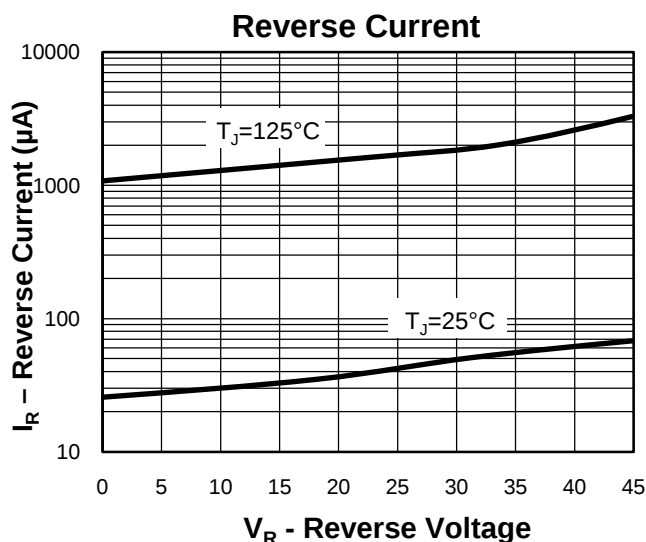
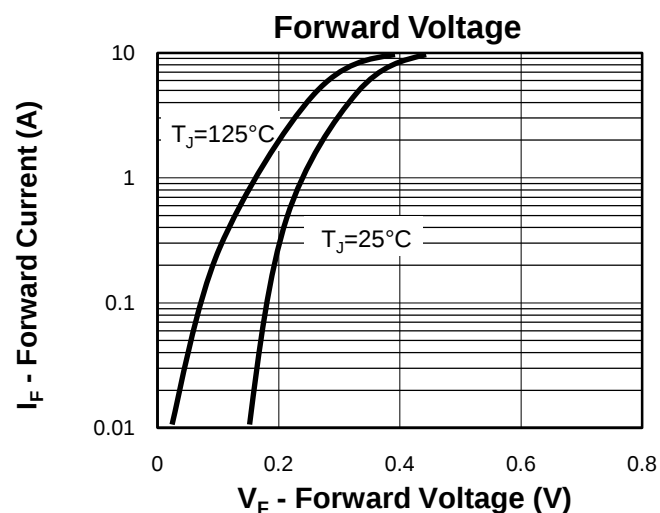
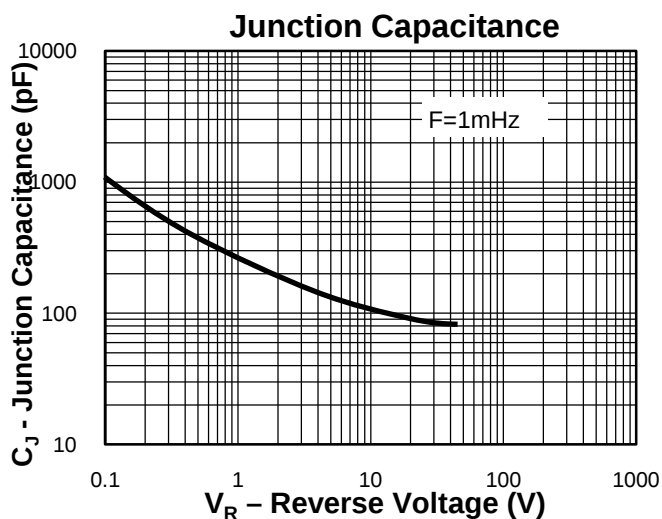
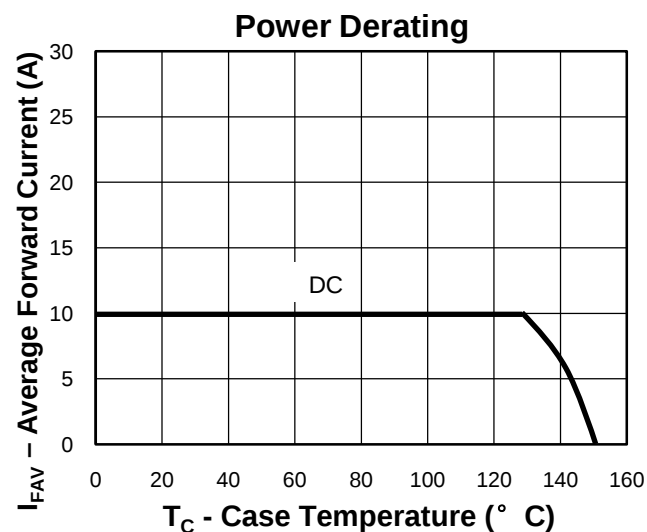
Symbol	Parameter	Test Condition	RUS4510K			Unit
			Min.	Typ.	Max.	
Static Characteristics						
$V_{(BR)R}^{②}$	Reverse Breakdown Voltage	$I_R=300\mu A$	45			V
$I_R^{②}$	Reverse Leakage Current	$V_R=45V, T_C=25^{\circ}C$			300	μA
		$V_R=45V, T_C=125^{\circ}C$			5	mA
$V_F^{②}$	Forward Voltage Drop	$I_F=2A, T_C=25^{\circ}C$		0.3	0.33	V
		$I_F=5A, T_C=25^{\circ}C$		0.36	0.4	V
		$I_F=10A, T_C=25^{\circ}C$		0.42	0.48	V
		$I_F=10A, T_C=125^{\circ}C$		0.37	0.43	V

Notes: ① For $T_A > 25^{\circ}\text{C}$ the derating of V_R and I_F has to be considered.
 ② Pulse test, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

Ordering and Marking Information

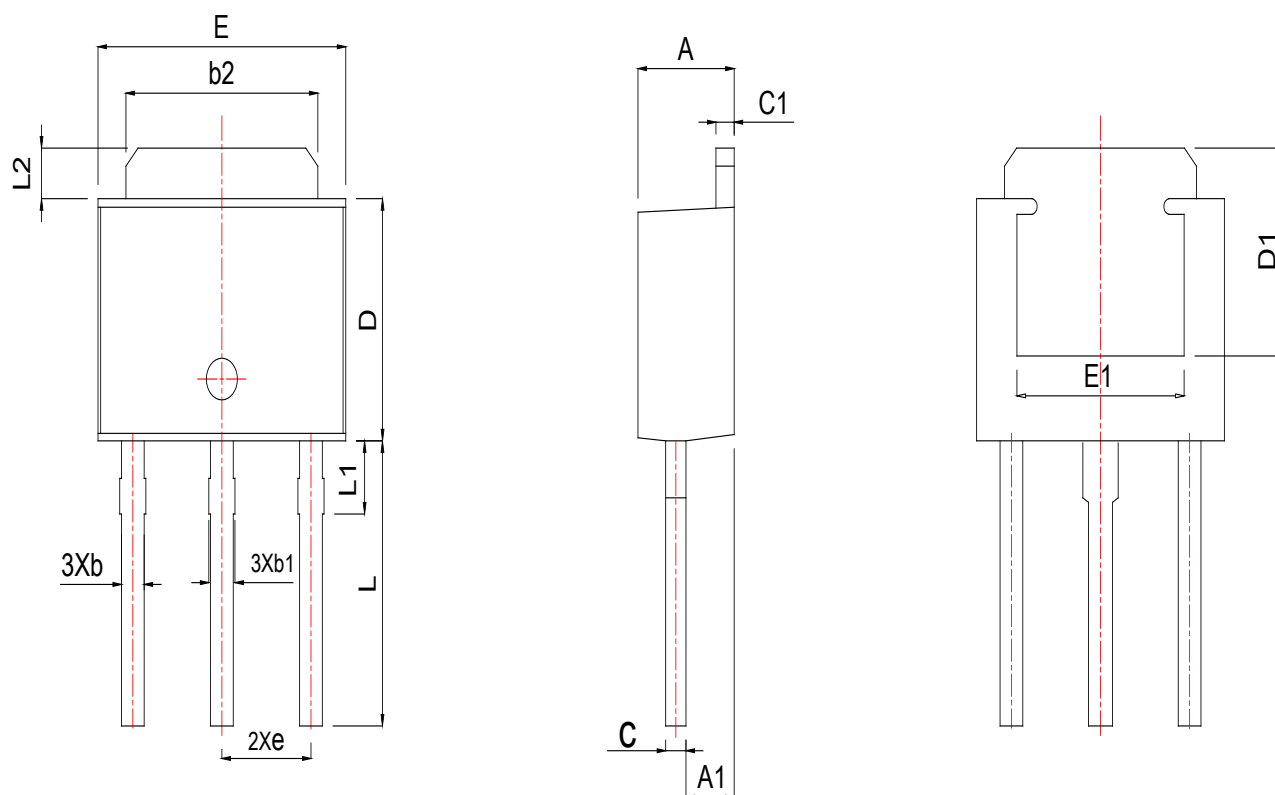
Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RUS4510K	RUS4510K	TO251	Tube	75	-	-

Typical Characteristics



Package Information

TO251



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	2.220	2.320	2.420	0.087	0.091	0.095
A1	0.890	1.015	1.140	0.035	0.040	0.045
b	0.550	0.610	0.670	0.022	0.024	0.026
b1	0.760	0.860	0.960	0.030	0.034	0.038
b2	5.200	5.300	5.400	0.205	0.209	0.213
c	0.460	0.515	0.570	0.018	0.020	0.022
c1	0.450	0.500	0.550	0.018	0.020	0.022
D	5.950	6.100	6.250	0.234	0.240	0.246
D1	4.200	4.350	4.500	0.165	0.171	0.177
E	6.400	6.550	6.700	0.252	0.258	0.264
E1	4.750	4.800	4.850	0.187	0.189	0.191
e	2.280 REF			0.090 REF		
L	8.900	9.200	9.500	0.350	0.362	0.374
L1	1.900	2.095	2.290	0.075	0.082	0.090
L2	0.900	0.950	1.000	0.035	0.037	0.039

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